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EXAMINER

STEIN, MICHELLE

ART UNIT

PAPER NUMBER

1771

NOTIFICATION DATE

DELIVERY MODE

10/07/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/575,330	Applicant(s) MESSER ET AL.	
	Examiner Michelle L. Stein	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-34 is/are pending in the application.
- 4a) Of the above claim(s) 10-17 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-9 and 18-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges Applicant's response filed 29 July 2010 containing remarks and amendments to the claims.
2. Claims 1 and 3-34 are pending, with claims 10-17 and 34 withdrawn.
3. The objections of claims 1-4 and 28 have been withdrawn in view of the amendments to the claims.
4. The rejections of claims 18 and 26 under 35 USC 112, 2nd paragraph have been withdrawn in view of amendments to the claims. There is a new rejection of claim 26 under 35 USC 112, 1st paragraph, in view of the amendment.
5. The previous rejections of the claims under 35 USC 102 and 103 are maintained. The rejections follow.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 26 pertains to a step of increasing the total acid number to reduce naphthenic acid corrosivity. However, in the art corrosivity is evaluated based on total acid number.

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Higher acid numbers indicate higher corrosivity (as evidenced by instant specification, page 2, lines 13-26). Examiner notes that the Applicant has not provided sufficient support to enable the increasing of total acid number using a beta fraction of naphthenic acid to reduce naphthenic acid corrosivity, such as a specific example, table or graph. The instant specification discusses many aspects of being "contemplated", but does not provide experimental data as support.

Claim Rejections - 35 USC § 102/ 35 USC § 103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Petersen (US 5,182,013).

11. For the purposes of examination, Claims 1- 9 are being treated as a composition.

12. Regarding claims 1-2, 5 and 9, Petersen teaches a process of reducing naphthenic acid corrosivity by blending oil that has a higher fraction of naphthenic acid

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content with oil that has a lower fraction of naphthenic acid content (column 1, lines 25-26). It is noted that “alpha” and “beta” have been interpreted to mean two different fractions of differing naphthenic acid content. Examiner notes that, “Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim.”

13. It is expected that the Petersen process would result in the same composition as claimed.

14. Regarding claim 3, Petersen teaches the limitations of claim 1, as discussed above. While Petersen does not explicitly teach the total acid number of each stream, Petersen teaches that the amount of naphthenic acid contributes to the corrosivity of crudes (column 1, lines 17-20). Also, more corrosive crudes possess higher total acid numbers (column 2, lines 26-30). The higher naphthenic acid content crude would have a higher total acid number than the lower naphthenic acid content crude. Therefore, it would have been obvious to the person having ordinary skill in the art to have used the Petersen method to blend a higher naphthenic acid content crude with a total acid number such as 2.0, with a lower naphthenic acid content crude with a total acid number of 0.3, for the benefit of reducing the naphthenic acid corrosivity of the higher naphthenic acid content crude.

15. Regarding claim 7, Petersen does not explicitly teach the total acid number of the resulting product. However, since Petersen teaches a general reduction of corrosivity, as discussed above, the person having ordinary skill in the art would readily recognize

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that the resulting Petersen process would be able to produce a composition with a total acid number of at least 2.5.

16. Regarding claim 8, Petersen does not explicitly teach the mole percent of naphthenic acid or the average molecular weight. However, in this regard, the Petersen process does reduce the naphthenic acid content. Additionally, it is well known that naphthenic acids generally have molecular weights between 200-700.

17. Thus, Examiner holds that the Petersen process, would result in the same product as in claims 1-3, 5 and 7-9.

18. In this regard, it is noted that “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CC PA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

19. Regarding claims 4 and 6, Petersen teaches the limitations of claims 1 and 5, as discussed above.

20. Petersen does not explicitly teach obtaining one of the naphthenic acid containing oil streams is prepared from a refinery crude using thermal hydroprocessing.

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21. However, it is noted that these claims are product-by-process claims. The Petersen reference teaches process steps which would result in the same product, as discussed with respect to claims 1-3, 5 and 7-9 above.

22. In this regard, it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).

23. Thus, Examiner holds claims 4 and 6 unpatentable in view of Petersen.

Claim Rejections - 35 USC § 102

24. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

25. Claims 18-21, 26-27, 29 and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Petersen (US 5,182,013).

26. Regarding claims 18-21 and 29, Petersen teaches that naphthenic acid constituents in crude oils cause severe corrosion problems in petroleum refining operations (column 1, lines 13-15). One way to reduce the naphthenic acid corrosion is

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to blend oil that has a higher fraction of naphthenic acid content with oil that has a lower fraction of naphthenic acid content (column 1, lines 25-26). It is noted that "alpha" and "beta" have been interpreted to mean two different fractions of differing naphthenic acid content. Examiner notes that, "Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim.

27. Regarding claims 26-27, Petersen teaches blending oil that has a higher fraction of naphthenic acid content with oil that has a lower fraction of naphthenic acid content (column 1, lines 25-26) to reduce corrosivity, as applied to claims 18-21 and 29 above. Petersen additionally teaches that crude oils with acid numbers of about 1.0 and below are low to moderately corrosive; and crude oils with acid numbers greater than 1.5 are considered corrosive and require treatment (column 2, lines 26-30). Thus, by the Petersen blending of oils to reduce corrosivity, the total acid number is also decreased.

28. Regarding claims 32 and 33, Petersen teaches that the higher fraction of naphthenic acid content oil is more corrosive, and should be blended with the lower fraction of naphthenic acid content oil which is less corrosive, in order to reduce the corrosivity of the oil (column 1, lines 13-26).

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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30. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

31. Claims 22, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen (US 5,182,013).

32. Regarding claim 22, Petersen teaches the limitations of claim 20, as discussed above.

33. Petersen does not explicitly teach the specific source of the crude oil.

34. However, it would have been obvious to the person having ordinary skill in the art to acquire a refinery feedstock with a certain naphthenic acid corrosivity from Athabasca oil sand crudes, since this is a well known source of oil sand.

35. Regarding claim 28, Petersen teaches that the amount of naphthenic acid present in a crude contributes to the corrosivity (column 1, lines 17-20). More corrosive crude oils have higher acid numbers (column 2, lines 25-30).

36. In view of this teaching, it would have been obvious to one of ordinary skill in the art that by blending a crude feedstock having a lower concentration of naphthenic acid with a naphthenic acid stream (which would have a much higher naphthenic acid content) would result in a stream which has a higher total acid number than the original crude stream.

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37. While Petersen does not explicitly teach the molecular weight of the naphthenic acid, it is well known in the art that naphthenic acids generally have molecular weights in a range between 200-700, which reads on the claimed average molecular weight of at least 350.

38. Thus examiner holds claim 28 unpatentable, in view of Petersen.

39. Regarding claim 31, Petersen teaches the limitations of claim 29, as discussed above.

40. Petersen does not explicitly teach the specific source of the crude oil.

41. However, the person having ordinary skill in the art would readily recognize that opportunity crudes would be a suitable resource to apply to the Petersen process.

42. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman (US 1,986,775) in further view of Petersen (US 5,182,013) .

43. Regarding claims 23-25, Kaufman teaches distilling crudes to produce a lubricating oil fraction containing a substantial fraction of naphthenic acids, and then subjecting to further vacuum distillation to produce lubricating oils substantially free from naphthenic acids and a residual fraction containing organic acid in the form a of non-volatile salts (column 1, lines 40-48).

44. Kaufman does not explicitly teach combining the lubricating oil substantially free from naphthenic acid (extremely low fraction of naphthenic acid content oil) with the original feedstock.

45. However, in the analogous art of reducing naphthenic acid corrosion, Petersen teaches that one way to reduce the naphthenic acid corrosion is to blend oil that has a

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higher fraction of naphthenic acid content with oil that has a lower fraction of naphthenic acid content (column 1, lines 25-26).

46. Therefore, the person having ordinary skill in the art would have been motivated to have blended the Kaufman lubricating oil substantially free from naphthenic acid with the original crude fraction (having a higher fraction of naphthenic acid content), for the benefit of reducing the corrosivity of the crude.

47. Additionally, the person having ordinary skill in the art would readily recognize that this modification would be appropriately carried out through using a recycle loop to blend the lubricating oil with the crude.

48. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen (US 5,182,013) in further view of Blum (US 5,820,750).

49. Petersen teaches the limitations of claim 29, as discussed above. Petersen does not explicitly teach the processing of the oils to comprise a step of hydrothermal processing.

50. However, in the analogous art of naphthenic acid corrosion, Blum teaches subjecting feeds containing acids to thermal treatment to decompose the acids and obtain a feed with a significantly reduced total acid number (column 1, lines 56-60).

51. Since Petersen teaches blending streams of lower naphthenic acid content with streams having higher naphthenic acid content, the person having ordinary skill in the art would have been motivated to have used the Blum thermal treatment process to produce a stream low in naphthenic acid content to blend with another stream having higher naphthenic acid content.

Response to Arguments

52. Applicant's arguments filed 29 July 2010 have been fully considered but they are not persuasive.

53. Examiner considers Applicant's arguments to be:

- I. Petersen does not teach or suggest the combination of alpha and beta fractions of naphthenic acid as claimed, wherein the beta fraction of naphthenic acid is desirable and reduces corrosivity, even if total naphthenic acid number increases.
- II. Petersen does not explicitly teach that increasing total acid number using a beta fraction of naphthenic acid reduces naphthenic acid corrosivity of feedstock.
- III. The art of record does not support using Athabasca oil sands or opportunity crudes to reduce combined naphthenic acid corrosivity.
- IV. The references cited do not distinguish between a corrosive alpha fraction and a corrosion inhibiting beta fraction.

54. Regarding Applicant's first argument, Petersen teaches blending 1) a fraction of higher naphthenic acid content with 2) a fraction having lower naphthenic acid content (column 1, lines 23-26). Examiner understands this to read on two different fractions of naphthenic acid which are blended together in order to minimize or prevent naphthenic acid corrosion. It is noted that "alpha" and "beta" have been interpreted to mean two different fractions of differing naphthenic acid content. Examiner notes that, "Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description

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may not be read into a claim when the claim language is broader than the embodiment."

Superguide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004). Furthermore, Examiner notes that the alpha and beta fractions defined in the specification overlap.

55. In the Petersen process, the person having ordinary skill in the art would readily recognize that the amount of lower naphthenic acid content fraction used is a function of the naphthenic acid content of the higher naphthenic acid content. More lower naphthenic acid content fraction would be required the higher the naphthenic acid content of the higher naphthenic acid content stream.

56. Regarding Applicant's second argument, Examiner points to the 35 USC 112, 1st paragraph, enablement rejection above. Claim 26 pertains to a step of increasing the total acid number to reduce naphthenic acid corrosivity. However, in the art corrosivity is evaluated based on total acid number. Higher acid numbers indicate higher corrosivity (as evidenced by instant specification, page 2, lines 13-26). Examiner notes that the Applicant has not provided sufficient support to enable the increasing of total acid number using a beta fraction of naphthenic acid to reduce naphthenic acid corrosivity, such as a specific example, table or graph. The instant specification discusses many aspects of being "contemplated", but does not provide experimental data as support.

57. Regarding Applicant's third argument, the Petersen reference teaches blending oils with higher naphthenic acid content and lower naphthenic acid content to reduce corrosivity, as discussed in the rejections above. The Athabasca oilsand crude could be

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blended with a stream having a higher total acid number, in order to result in a stream with reduced corrosivity. Similarly, the opportunity crudes could be blended with a stream having a lower total acid number, to acquire a less corrosive stream.

58. Regarding Applicant's fourth argument, the Petersen reference teaches blending a fraction with higher naphthenic acid content with a fraction with lower naphthenic acid content, as discussed in the rejections above, to reduce corrosivity. Additionally, as addressed in response to Applicant's first argument, it is noted that the claims have been given the broadest reasonable interpretation, without imparting limitations from the specification.

.....
Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle L. Stein whose telephone number is (571)270-

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1680. The examiner can normally be reached on Monday-Friday 8:30AM-5PM EST, Alt Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michelle L. Stein/
Examiner, Art Unit 1797

/Glenn A Caldarola/
Supervisory Patent Examiner, Art
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